REMARKS/ARGUMENT

Claims 1 and 8 are amended. Claims 1-10 are pending. Claims 1 and 8 are rejected under 35 U.S.C. § 102 as being anticipated by U.S. Patent No. 5,353,348 to Sendyk et al. ("Sendyk"). Claims 2 and 4 are rejected under 35 U.S.C. § 103 as being obvious over Sendyk in view of U.S. Patent No. 5,787,165 to Lilja et al. ("Lilja") and in view of U.S. Patent No. 5,463,618 to Furukawa et al. ("Furukawa"). Claims 3 and 5 are rejected as being obvious in view of Sendyk in view of Lilja, Furukawa, and further in view of U.S. Patent No. 5,940,499 to Fuji et al. ("Fuji"). Claims 6 and 7 are rejected as being obvious over Sendyk in view of Furukawa. Claims 9 and 10 are rejected as being obvious over Sendyk in view of Lilja and further in view of Furukawa. Reconsideration of the application in light of the remarks below is respectfully requested.

In order to establish a prima facie case of obviousness, the prior art must show all of the claimed limitations. M.P.E.P. § 706.02(j).

Claim 1 is amended to more clearly recite that the transmitting side control section and the receiving side control section are distinct elements. Similarly, claim 8 is amended to clearly indicate that the second control circuit and first control circuit are distinct elements. In contrast, the Sendyk reference shows a single variable gain control 30 which receives input from comparators 20 and 32. Variable gain control 30 can then adjust the gains of both variable gain 26 and 40 simultaneously. However, variable gain control 30 makes a single determination based on both inputs from comparators 20 and 32. Variable gain control 30 cannot process the data from one of the comparators and adjust a single corresponding variable gain accordingly. See, e.g., col. 5, lines 40-54 of the Sendyk reference. In contrast, the claimed invention recites two distinct variable gain controllers which allows for more flexible alteration of gain. As such, it is asserted that in independent claims 1 and 8 are patentable over Sendyk. Reconsideration of the rejection of claims 1 and 8 under 35 U.S.C. § 102 is therefore respectfully requested.

The other references cited in the Office Action to Lilja, Furukawa, and Fuji are similarly devoid of multiple variable gain controls. It is therefore asserted that independent claims 1 and 8 are patentable over even a combination of these references as well. Claims 2-6 and 9-10 include the above reference of limitations of independent claims 1 and 8 respectively and include further limitations which, in combination with the limitations of independent claims 1 and 8, are also neither disclosed nor suggested in the art of record. It is asserted that these claims are patentable as well. Reconsideration of the rejection of claims 2-7 and 9-10 under 35 U.S.C. § 103 is respectfully requested in light of the remarks above.

Respectfully submitted,

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APPENDIX A
"Clean" Version of Each Paragraph/Section/Claim
37 CFR 1.121(b)(1)(ii) AND (c)(1)(i)

CLAIMS (with indication of amended or new):

1. (Amended) A voice switch system comprising:

a transmitting side attenuation section for attenuating a microphone input voice signal having a first level to produce a transmitted voice signal having a second level;

a receiving side attenuation section for attenuating a received voice signal having a third level to produce a speaker output voice signal having a fourth level;

a transmitting side control section for comparing said first level of said microphone input voice signal with said fourth level of said speaker output voice signal to obtain a first difference therebetween, said transmitting side control section controlling, dependent on said first difference, an amount of attenuation of said microphone input voice signal in said transmitting side attenuation section; and

a receiving side control section distinct from the transmitting side control section and for comparing said second level of said transmitted voice of signal with said third level of said received voice signal to obtain a second difference therebetween, said receiving side control section controlling, dependent on said second difference, an amount of attenuation of said received voice signal in said receiving side attenuation means.

8. (Amended) A voice switching system comprising:

a first receiver which receives a first voice signal;

a first attenuation circuit which receives the first voice signal from the first receiver and produces a first attenuated signal;

a first control circuit coupled to the first attenuation circuit;

a second receiver which receives a second voice signal;

a second attenuation circuit which receives the second voice signal from the second receiver and produces a second attenuated signal; and

a second control circuit distinct from the first control circuit and coupled to the second attenuation circuit; wherein

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the first control circuit receives the first voice signal and the second attenuated signal, the first control circuit compares the first voice signal and the second attenuated signal and produces a first attenuation control signal in response thereto, the first attenuation control signal controls an attenuation of the first attenuation circuit; and

the second control circuit receives the second voice signal and the first attenuated signal, the second control circuit compares the second voice signal and the first attenuated signal and produces a second attenuation control signal in response thereto, the second attenuation control signal controls an attenuation of the second attenuation circuit.

APPENDIX B
Version With Markings To Show Changes Made
37 CFR 1.121(b)(1)(iii) AND (c)(1)(ii)

CLAIMS (with indication of amended or new):

1. (Thrice Amended) A voice switch system comprising:

a transmitting side attenuation section for attenuating a microphone input voice signal having a first level to produce a transmitted voice signal having a second level;

a receiving side attenuation section for attenuating a received voice signal having a third level to produce a speaker output voice signal having a fourth level;

a transmitting side control section for comparing said first level of said microphone input voice signal with said fourth level of said speaker output voice signal to obtain a first difference therebetween, said transmitting side control section controlling, dependent on said first difference, an amount of attenuation of said microphone input voice signal in said transmitting side attenuation section; and

a receiving side control section <u>distinct from the transmitting side control section and</u> for comparing said second level of said transmitted voice of signal with said third level of said received voice signal to obtain a second difference therebetween, said receiving side control section controlling, dependent on said second difference, an amount of attenuation of said received voice signal in said receiving side attenuation means.

8. (Amended) A voice switching system comprising:

a first receiver which receives a first voice signal;

a first attenuation circuit which receives the first voice signal from the first receiver and produces a first attenuated signal;

a first control circuit coupled to the first attenuation circuit;

a second receiver which receives a second voice signal;

a second attenuation circuit which receives the second voice signal from the second receiver and produces a second attenuated signal; and

a second control circuit distinct from the first control circuit and coupled to the second attenuation circuit; wherein

the first control circuit receives the first voice signal and the second attenuated signal, the first control circuit compares the first voice signal and the second attenuated signal and produces a first attenuation control signal in response thereto, the first attenuation control signal controls an attenuation of the first attenuation circuit; and

the second control circuit receives the second voice signal and the first attenuated signal, the second control circuit compares the second voice signal and the first attenuated signal and produces a second attenuation control signal in response thereto, the second attenuation control signal controls an attenuation of the second attenuation circuit.

APPENDIX C
"Clean" Version of All Claims Without Amended/New Indications
37 CFR 1.121(c)(3)

1. A voice switch system comprising:

a transmitting side attenuation section for attenuating a microphone input voice signal having a first level to produce a transmitted voice signal having a second level;

a receiving side attenuation section for attenuating a received voice signal having a third level to produce a speaker output voice signal having a fourth level;

a transmitting side control section for comparing said first level of said microphone input voice signal with said fourth level of said speaker output voice signal to obtain a first difference therebetween, said transmitting side control section controlling, dependent on said first difference, an amount of attenuation of said microphone input voice signal in said transmitting side attenuation section; and

a receiving side control section distinct from the transmitting side control section and for comparing said second level of said transmitted voice of signal with said third level of said received voice signal to obtain a second difference therebetween, said receiving side control section controlling, dependent on said second difference, an amount of attenuation of said received voice signal in said receiving side attenuation means.

2. A voice switching system as claimed in claim 1, said receiving side control section further comprising:

a transmitting side signal delay buffer for providing said transmitted voice signal with a delay time, said delay time corresponding to a time for which said transmitted voice signal returns as said received voice signal through a communication line;

a transmitting side signal power estimation section for estimating a signal power of said transmitted voice signal outputted from said transmitting side signal delay buffer;

a receiving side signal power estimation section for estimating a signal power of said received voice signal;

a comparator for comparing said estimated signal power of said transmitted voice signal estimated by said transmitting side signal power estimation section with said estimated signal power of said received voice signal estimated by said receiving side signal power estimation section to obtain a ratio therebetween; and

a first attenuation amount calculation section for calculating an amount of attenuation in said receiving side attenuation section based on said ratio outputted from said first comparator.

3. A voice switching system as claimed in claim 2, wherein said receiving voice signal inputted to said receiving side signal power estimation section is silent at the initial time when said transmitted voice signal is inputted to said transmitting side signal delay buffer.

4. A voice switching system as claimed in claim 1, said transmitting side controller further comprising:

a microphone input power estimation section for estimating a signal power of said microphone input voice signal:

a speaker output signal delay buffer for providing said speaker output voice signal with a delay time, said delay time corresponding to a time for which a voice outputted from said speaker becomes said microphone input voice signal by a sound coupling with said microphone;

a first speaker output power estimation section for estimating a signal power of said speaker output voice signal outputted from said speaker output signal delay buffer;

a comparator for comparing an estimated signal power of aid microphone input voice signal estimated by said microphone input power estimation section with an estimated signal power of said speaker output voice signal estimated by said first speaker output power estimation section to obtain a ratio therebetween; and

an attenuation amount calculation section for calculating an amount of attenuation in said transmitting side attenuation section based on said ratio outputted from said second comparator.

5. A voice switching system as claimed in claim 4, wherein said microphone input voice signal inputted to said microphone input power estimation section is silent at the initial time when said speaker output voice signal is inputted to said speaker output signal delay buffer.

6. A voice switching system as claimed in claim 1, said transmitting side control means further comprising:

a residual echo power estimation section for estimating a signal power of residual echo signal obtained by said microphone input voice signal passing through an acoustic echo canceller;

a second speaker output power estimation section for estimating a signal power of said speaker power of said speaker output voice signal passing through said acoustic echo canceller;

a third comparator for comparing an estimated signal power of said residual echo signal estimated by said residual echo power estimation section with an estimated signal power of said speaker output voice signal estimated by said second speaker output power estimation section to obtain a ratio therebetween; and

a third attenuation amount calculation section for calculating an amount of attenuation in said transmitting side attenuation section based on said ratio outputted from said third comparator.

7. A voice switching system as claimed in claim 6, wherein said acoustic echo canceller sequentially renews an adaptive filter coefficient stored in an adaptive filter coefficient buffer by the use of said residual echo signal and a value of an adaptive filter tap input buffer, said residual echo signal being outputted from a subtractor to which said microphone input voice signal is inputted, and wherein a sum of products between said adaptive filter coefficient of said adaptive filter coefficient buffer and said value of said adaptive filter tap input buffer is calculated in a sum of products operator, a result of the

calculation being subtracted by said subtractor from said microphone input voice signal, thereby said residual echo signal being outputted.

8. A voice switching system comprising:

a first receiver which receives a first voice signal;

a first attenuation circuit which receives the first voice signal from the first receiver and produces a first attenuated signal;

a first control circuit coupled to the first attenuation circuit;

a second receiver which receives a second voice signal;

a second attenuation circuit which receives the second voice signal from the second receiver and produces a second attenuated signal; and

a second control circuit distinct from the first control circuit and coupled to the second attenuation circuit; wherein

the first control circuit receives the first voice signal and the second attenuated signal, the first control circuit compares the first voice signal and the second attenuated signal and produces a first attenuation control signal in response thereto, the first attenuation control signal controls an attenuation of the first attenuation circuit; and

the second control circuit receives the second voice signal and the first attenuated signal, the second control circuit compares the second voice signal and the first attenuated signal and produces a second attenuation control signal in response thereto, the second attenuation control signal controls an attenuation of the second attenuation circuit.

9. The voice switching system as recited in claim 8, wherein the first control section comprises:

a buffer which receives the second attenuated signal, and delays the second attenuated signal with a delay time substantially equal to a time for the second attenuated signal to travel from the second attenuation circuit to the first attenuation circuit through a communication line, thereby producing a delayed second attenuated signal;

a first power estimation section coupled to the buffer, the first power estimation section estimates a power of the delayed second attenuated signal and produces an output in response thereto;

a second power estimation section which receives the first voice signal, estimates a power of the first voice signal and produces an output in response thereto;

a comparator which receives and compares the outputs of the first and second power estimation sections and produces an output in response thereto; and

an attenuation amount calculation section which receives the output of the comparator and produces the first attenuation control signal in response thereto.

10. The voice switching system as recited in claim 8, wherein the second control section comprises:

a first power estimation section which receives the second voice signal, estimates a power of the second voice signal and produces an output in response thereto;

a buffer which receives the first attenuated signal, and delays the first attenuated signal with a delay time substantially equal to a time for the first attenuated signal to travel from a speaker connected to the first attenuation circuit to the second receiver, thereby producing a delayed first attenuated signal;

a second power estimation section coupled to the buffer, the second power estimation section estimates a power of the delayed first attenuated signal and produces an output in response thereto;

a comparator which receives and compares the outputs of the first and second power estimation sections and produces an output in response thereto;

an attenuation amount calculation section which receives the output of the comparator and produces the second attenuation control signal in response thereto.